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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/826,492

04/16/2004

Henry Ho

AMAT/8269/CMP/ECP/RKK

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EXAMINER

WALDBAUM, SAMUEL A

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

11/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|---------------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/826,492 | Applicant(s) HO ET AL. | |
| | Examiner SAMUEL A. WALDBAUM | Art Unit 1792 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-11 and 30-45 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 38-45 is/are allowed.
- 6) ☒ Claim(s) 1,3-11 and 30-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In the reply filed September 9, 2008 the applicant has amended claims 1, 3, 6 and 9, cancelled claim 2, added claims 30-45. The previous rejection is hereby withdrawn in favor of the new rejection found below.

Double Patenting

2. Claim 30-37 objected to under 37 CFR 1.75 as being a substantial duplicate of claims 1, 3, 5-9, 11. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). The only difference between claims 30 and claim 1, is that claim 30 states “wherein the simultaneous rotation of the each vertical shaft member about its central axis centers a substrate disposed on the raised central substrate support portion of each of the cap member over the rotatable substrate support member”. This addition language does not provide an addition limitation that will differentiate claim 30 from claim 1, since this limitation is just state what the three cooperatively rotatable substrate centering posts are doing. Claims 31-37 are objected to since they are the same dependent claims of 3, 5-9 and 11.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3-5, 9-10, 30-32 and 36 rejected under 35 U.S.C. 103(a) as being unpatentable over Henderson (U.S. 6,530,157, hereafter `157) in view of Anderson et al (U.S. 5,851,041, hereafter `041) and Adachi et al (U.S. pgpub. 2002/0134512, hereafter `512) and Shinabara (U.S. 4,788,994, hereafter `994).

5. Claims 1 and 30: 157 teaches a chamber body (fig. 2, clearly shows a chamber body for processing the substrate), a rotatable substrate support positioned in the lower portion of the processing volume (fig 2, part 4, col. 6, lines 35-55), with a least three cooperatively rotatable substrate centering posts (figs, 1-9, col. 4, lines 20- col. 5, line 25 and col. 5, lines 45-col. 6, line 55) where the substrate centering posts are stationary while the chuck rotates the substrates (fig. 1-9, col. 4, lines 20- col. 5, line 25 and col. 5, lines 45-col. 6, line 55) and a nozzle for dispensing fluid (fig. 8 part 15, col. 6, lines 35-55). `157 teaches that the centering post is separate from the rotatable substrate support (see claim 1 above). `157 does not teach that the centering post compose a vertical member, a cap member a raised central portion of the cap, and a raised centering portion extending form the cap positioned off center. `041 is a substrate processing apparatus. `041 teaches that the substrates centering post can have a vertical positioning shaft (fig. 2, part 215, shows a vertical shaft) and teaches a cap member for terminating the end of the

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shaft (fig. 3, part 216, col. 5, lines 20-33). All of the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention, meaning that centering posts can have a vertical member and cap as taught by '041 in apparatus '157 to have yield the predictable result of centering the substrate over the rotating substrate support.

'157 in view of '041 does not teach that the cap has a raised central portion and that has an extension extending from the cap. '512 is a substrates processing apparatus. '512 teaches that a cap (fig. 8 and 12, parts 112 and 112g, [0087]) that has a raised center from the edge (fig. 8, the raised center can be seen by the upper incline from part 1122 to part 1121) and a projection extending from therefrom for centering the substrate (fig. 8, part 1121). All of the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention, meaning that the cap can have a raised center portion and an extending post from the top of the cap as taught by '512 in apparatus '157 in view of '041 to have yield the predictable result of centering the substrate over the rotating substrate support.

'157 in view of '041 and '512 do not teach that the upward extending member from the cap is off centered. '994 is solving the same problem of the applicant of placing a extending member off centered for positioning the substrate. '994 teaches that the extending member from a cap is off centered so the substrate can rest on the remain portion of the cap (fig. 12, shows off center extending member, part 77, allowing substrate to rest on the cap col. 9, line 45-col. 10 line

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5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have off centered the extension as taught by '994 in apparatus '157 in view of '041 and '512 to have allowed the substrate to rest on the rest of the cap as it is being centered.

6. Claims 3 – 5, 31 and 32: '041 teaches at least 3 rotatable centering post receiving receptacles (fig. 2, centering post, part 215 to connect to part 217, through the housing, part 210 by pin, part 218). Wherein the centering post are linked together so they move as one (fig. 6, part 217 connects the centering posts at each end to the linking arm, part 601), while an actuator (col. 4, lines 60 – 67), which can be powered by air (col. 8, lines 29 – 42) is used to rotate the arms in one cooperative movement (fig. 6 – 7, shows the linking arms, part 601, powered by the actuator to collectively move the centering post receiving receptacles, thus moving the arms). All of the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention, meaning that the centering post moving mechanism as described above and taught by '041 can be the linking and moving assembly in apparatus '041 to yield the predictable result of rotating the centering post into position.

7. Claims 9 and 36: '157 teaches that the centering posts are simultaneously rotated (col. 4, line 20-col. 6, line 55), '041 teaches that the rotating posted is configured to be simultaneously rotated by an actuator (see claim 3 above). Therefore the actuator as taught by '041 is capable of simultaneously rotating the centering posts in apparatus '157.

8. Claim 10: '157 teaches that the centering post are engaging the bevel of the wafer (fig. 4).

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Claims 6-8 and 33-35 rejected under 35 U.S.C. 103(a) as being unpatentable over Henderson (U.S. 6,530,157) in view of Anderson et al (U.S. 5,851,041) and Adachi et al (U.S. ppub. 2002/0134512) and Shinabara (U.S. 4,788,994) as applied to claim 1 above, further in view of Mayer et al (U.S. 6,537,416, hereafter '416).

'157, '041, 512 and '994 teaches all the limitations of claim 1 above.

9. Claim 6-8 and 33-35: '157 teaches a first pivoting nozzle in communication with a fluid above the wafer (fig. 8 part 15, col. 6, lines 35-55). '157 does not teach multiple nozzles or a nozzle underneath the wafer. '416 is a wafer cleaning apparatus. '416 teaches the use of pivoting nozzle in communication with an etchant (col. 11, lines 25 – 50) and a second nozzle in communication with a rinsing solution (col. 8, lines 26 – 45). '416 teaches the use of backside nozzles for dispensing a rinsing solution (col. 8, lines 45 – 55) and a second backside nozzle for dispensing a etchant (col. 9, lines 15 – 25) which is capable of dispensing a cleaning solution, allowing for rinsing solution and etchant to cover more surface area. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the multiple nozzle configuration taught by '416 in apparatus '157 in view of '041, 512 and '994 to have allowed for rinsing or etchant solution to be dispensed over a larger area of the wafer.

Claims 11 and 37 rejected under 35 U.S.C. 103(a) as being unpatentable over Henderson (U.S. 6,530,157) in view of Anderson et al (U.S. 5,851,041) and Adachi et al (U.S. ppub. 2002/0134512) and Shinabara (U.S. 4,788,994) as applied to claim 1 above, further in view of Kurihara et al (U.S. 5,820,685, hereafter '685).

'157, '041, 512 and '994 teaches all the limitations of claim 1 above.

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10. Claims 11 and 37: `157 does not teach that the substrate centering posts are vertically movable between a loading and processing position. `685 is wafer support device. `685 teaches that the wafer supports can raise vertically through the bottom of the plate to support the wafer (abstract, col. 1, lines 52 –62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the center post of apparatus `157 in view of `041, 512 and `994 to be elevated and lowered as taught by `685 to provide support for the wafer.

Response to Arguments

11. Applicant's arguments filed September 9, 2008 have been fully considered but they are not persuasive.

12. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

13. Applicant provide piecemeal analysis of what each individual reference did not teach. However the applicant provided no argument as to why the combination of reference as used by the examiner was wrong. Applicant provided a conclusitory statement which is not convincing, thus the rejection is maintained.

Allowable Subject Matter

14. The following is a statement of reasons for the indication of allowable subject matter: Claims 38-45 are hereby indicated as allowable. Claim 38 added the limitation "a sleeve member engaged with the vertical shaft member and the cap member to form a fluid seal". The

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prior art does not teach that a seal is placed connecting the cap with the vertical shaft to create a fluid seal.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAMUEL A. WALDBAUM whose telephone number is (571)270-1860. The examiner can normally be reached on M-TR 6:20-3:50, F 6:30-10:30 est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. A. W./
Examiner, Art Unit 1792

/Michael Cleveland/
Supervisory Patent Examiner, Art Unit 1792